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GridFTP frontend with redirection for DMLite

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One of the most widely used storage solutions in WLCG is a Disk Pool Manager (DPM) developed and supported by SDC/ID group at CERN. Recently DPM went through a massive overhaul to address scalability and extensibility issues of the old code.
New system was called DMLite. Unlike the old DPM that was based on daemons, DMLite is arranged as a library that can be loaded directly by an application. This approach greatly improves performance and transaction rate by avoiding unnecessary inter-process communication via network as well as threading bottlenecks. DMLite has a modular architecture with its core library providing only the very basic functionality. Backends (storage engines) and frontends (data access protocols) are implemented as plug-in modules. Doubtlessly DMLite wouldn't be able to completely replace DPM without GridFTP as it is used for most of the data transfers in WLCG.
In DPM GridFTP support was implemented in a Data Storage Interface (DSI) module for Globus'GridFTP server. In DMLite an effort was made to rewrite a GridFTP module from scratch in order to take advantage of new DMLite features and also implement new functionality. The most important improvement over the old version is a redirection capability.
With old GridFTP frontend a client needed to contact SRM on the head node in order to obtain a transfer URL (TURL) before reading or writing a file. With new GridFTP frontend this is no longer necessary: a client may connect directly to the GridFTP server on the head node and perform file I/O using only logical file names (LFNs). Data channel is then automatically redirected to a proper disk node.
This renders the most often used part of SRM unnecessary, simplifies file access and improves performance. It also makes DMLite a more appealing choice for non-LHC VOs that were never much interested in SRM.
With new GridFTP frontend it's also possible to access data on various DMLite-supported backends like HDFS, S3 and legacy DPM.

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